

Remarks

I. Status of Claims

Claims 1, 2, 5-8, and 10-14 are currently pending in the application. Claims 1, 7, and 11 are independent and currently amended. The Applicant respectfully submits that support for the additional language of the claims can at least be found in FIG. 3b and that no new matter is added.

Claims 1, 2, 5-8, and 10-11 stand rejected under 35 USC 103(a) as being allegedly unpatentable over Kawashima *et al.* (US 6,851,258) (hereinafter “Kawashima”) in view of Tashiro *et al.* (US 6,662,480) (hereinafter “Tashiro”), Schaller *et al.* (US 6,948,311) (hereinafter “Schaller”), and Boretto *et al.* (US 6,941,750) (hereinafter “Boretto”).

The Applicant respectfully requests reconsideration of these rejections in view of the following remarks and the foregoing amendments.

II. Pending Claims

Independent claims 1, 7, and 11, the only independent claims, stand rejected under 35 USC 103(a) as being allegedly unpatentable over Kawashima in view of Tashiro, Schaller, and Boretto.

The Applicant respectfully submits that claims 1, 7, and 11 are patentable over the cited references at least because they recite, “...the intermittent fuel addition increases a catalyst temperature so that the catalyst temperature in the burn-up control is higher than the catalyst temperature at the time the estimated accumulation amount is less than the determination value in order to burn up particulate matter that is deposited at an upstream end of a particulate filter.” (emphasis added)

In the last paragraph on page 3, which also bridges page 4, of the Office Action, the Examiner recognizes that Kawashima does not disclose intermittent fuel addition to increase a catalyst temperature in order to burn up particulate matter that is deposited at an upstream end of a particulate filter as recited in Applicant’s claim 1.

Accordingly, in order to address this deficiency, the Office Action states on page 5 that, “[a]s shown in Figure 1, Boretto et al. disclose [sic] a method of determining an amount of particulate accumulated in a particulate filter (9). As illustrated in Figure 3b, Boretto et al. teach [sic] that during a regeneration step of the filter, the particulate matter in the channels at a

periphery of the filter (i.e., further away from the center of the filter) is burned at a later time. Because of this, after a partial regeneration situation such as a suspension in Kawashima et al. or at the beginning of the third phase in Schaller et al., there is still particulate matter remaining in the peripheral channels at an upstream location of the filter. Thus, based on the teaching by Boretto et al., **it would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have realized that Schaller et al. perform [sic] the intermittent fuel addition during the third phase in order to burn up particulate matter that is deposited at an upstream end of the filter.**" (emphasis added). See also the third paragraph of the "Response to Arguments" section that bridges pages 6 and 7 of the Office Action.

Further, in the Advisory Action mailed March 20, 2008 it is alleged that, "Schaller et al. perform [sic] a third phase by intermittently injecting a fuel into an exhaust stream in order to keep a filter temperature during a last phase of regeneration within a narrow range (see lines 10-19 of column 2). No where in Schaller et al. that indicates this narrow temperature range being below a filter temperature before a burn-up control. Thus, there is no risk to have incomplete regeneration of the filter in Schaller et al. because of low filter temperature during the last phase of regeneration, as alleged or assumed by Applicant."

The Applicant respectfully disagrees. As noted in the previous response, with respect to Shaller, in column 7, lines 23-25, it is recited that "[i]t is advantageous if, after shutting off the additional fuel metering, it is periodically switched on and off again. By doing this, a decrease in the temperature during regeneration may be prevented." (emphasis added).

Accordingly, it is respectfully submitted by the Applicant that Shaller does not disclose or suggest that a catalyst bed temperature in burn-up control is higher than the temperature of the catalyst before the burn-up control. Rather, in contrast to Shaller, certain embodiments of the present invention, for example, as shown in FIGS. 3(a)-(b), include a catalyst bed temperature in burn-up control that is higher than 650°C and higher than a temperature of the catalyst bed before the burn-up control. Thus, the Applicant respectfully submits that certain embodiments of the present invention are more effective than Shaller and the other cited references in completely burning PM accumulated about each catalyst when the actual PM accumulation amount is reduced to zero. Lacking any teaching and/or suggestion of each and every limitation of the

Applicant's claims, the Applicant respectfully submits that the alleged modification of Kawashima in view of Shaller fails to render the Applicant's claimed invention obvious.

Further, following the above-identified amendments, the independent claims are amended to clarify that the catalyst bed temperature in burn-up control is higher than 650° C and higher than a temperature of the catalyst bed before the burn-up control. More specifically, claims 1, 7, and 11 are amended to recite that "the intermittent fuel addition increases a catalyst temperature so that the catalyst temperature in the burn-up control is higher than the catalyst temperature at the time the estimated accumulation amount is less than the determination value in order to burn up particulate matter that is deposited at an upstream end of a particulate filter." (emphasis added)

In contrast to embodiments of the present invention, Shaller merely recites that "it is advantageous if, after shutting off the additional fuel metering, it is periodically switched on and off again. By doing this, a decrease in the temperature during regeneration may be prevented." However, the Applicant respectfully submits that Shaller does not disclose or suggest that a catalyst bed temperature in burn-up control is higher than the temperature of the catalyst before the burn-up control as required by the Applicant's claims.

Therefore, the Applicant respectfully submits that, for at least these reasons, claims 1, 7, and 11, as well as their dependent claims, are patentable over the cited references.

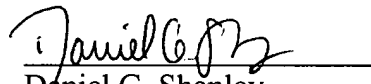
III. Conclusion

In light of the above discussion, Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance. The Examiner is invited to contact the undersigned at (202) 220-4420 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

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